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The aphyllophorales (*Basidiomycota*) of a Mediterranean biodiversity "hotspot" — "Cazorla, Segura & Las Villas" Natural Park (Spain)

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Abstract — A preliminary inventory of the aphyllophorales of the "Cazorla, Segura & Las Villas" Natural Park is presented, based on original data augmented by literature references. This catalogue includes 200 species representing 90 genera. Seven species are new to the catalogue of Spanish mycobiota: *Antrodia albidoides, Fibricium subceraceum, Gloeodontia columbiensis, Hyphodermella densa, Oliveonia pauxilla, Postia undosa,* and *Skeletocutis albocremea*. The complete catalogue is available on http://www.mycotaxon.com/resources/weblist.html.

Key words — mycobiota, corticioid fungi, *Polyporaceae*, fungal diversity, Iberian Peninsula

Introduction

"Hotspots" are areas characterized by exceptional number of endemic species that have suffered an extraordinary habitat loss. Regions with Mediterranean climate (wet winters and dry summers) account for most of the world's extra-tropical biodiversity hotspots (Myers et al. 2000), being both highly diverse and highly endangered. The biota of these regions is characterized by high diversity, with large numbers of highly localized endemic species (Cowling et al. 1996). The Mediterranean Basin hotspot stretches from Portugal to Jordan and from Morocco to northern Italy.

The "Cazorla, Segura & Las Villas" Natural Park, the largest protected area of Spain and second largest of Europe, was declared a Biosphere Reserve by UNESCO in 1983. Situated in southern Spain and covering an area of 214,300 ha, the Park occupies the Southeast region of Jaén Province (fig. 1). It is formed

by the Prebético mountain system and oriented SW-NE, with altitudes ranging from 460 to 2109 m. Pico de las Empanadas (2107 m) and Pico Cabañas (2036 m) occupy the highest points and Huesa (460 m), occupies the lowest elevation. The climate is mild Mediterranean, with an 800–2000 mm annual rainfall and temperatures ranging from 30–35ºC (summer) to 10–15ºC (winter). Its latitudinal and altitude variations combined with its orography greatly influence the Park climate and produce microclimates that make possible the existence of a diversified Mediterranean flora and allow growth of species more typical of northern zones. The floristic richness of this territory can be seen in the high number of endemic species of vascular plants: 27 endemic for the area and more than 130 Iberic endemics.

Below 850 m, we find large areas of holm oak (*Quercus ilex* subsp. *ballota*) with *Phillyrea angustifolia, Pistacia lentiscus, Rhamnus alaternus, Rhamnus lycioides, Prunus spinosa,* and *Lonicera implexa*. To a great extent, this forest type has been repopulated with *Pinus halepensis* that continues the evergreen shrub association — *Rosmarinus officinalis, Cistus monspeliensis, C. clusii, C. salviifolius, Genista scorpius, Halimium atriplicifolium, Pistacia lentiscus,* and *Thymus mastichina*.

Between 850–1200 m, woods with (among others) *Quercus ilex* subsp. *ballota, Q. faginea, Arbutus unedo, Phillyrea latifolia, Viburnum tinus, Erica arborea, Sorbus domestica, Clematis vitalba,* and *Hedera helix* are present. Between 1200–1500 m, we find *Pinus nigra* forests with *Crataegus monogyna, Juniperus phoenicea, Berberis hispanica, Ilex aquifolium, Lonicera splendida,* and *Cytisus reverchonii* also present. From 1500–1800 m, on deep and fertile soils, *Acer granatense, Prunus mahaleb, Crataegus monogyna, Sorbus aria, Lonicera arborea,* and *L. etrusca,* occur in small but very interesting forests. Previously abundant, these stands now form mixed formations with *P. nigra*.

Above 1800 m, *P. nigra* groves with *Juniperus communis* subsp. *hemisphaerica*, *J. sabina*, *Prunus prostrata*, *Genista longipes,* and others are found.

Materials and methods

This study is based on original and bibliographical data. The original data result from the study of specimens collected in 14 localities from within the "Cazorla, Segura & Las Villas" Natural Park, 12 during the III Mycological Foray (11–13 May 1990) "Flora Mycologica Iberica" project, with the remaining two localities visited earlier.

A total of 415 specimens were studied following classical methods for the aphyllophorales fungi: thin, freehand sections from each specimen were mounted in KOH (5%) and/or Melzer's reagent. These sections were studied under optical microscope. The specimens have been deposited in LISU and MA-Fungi herbaria

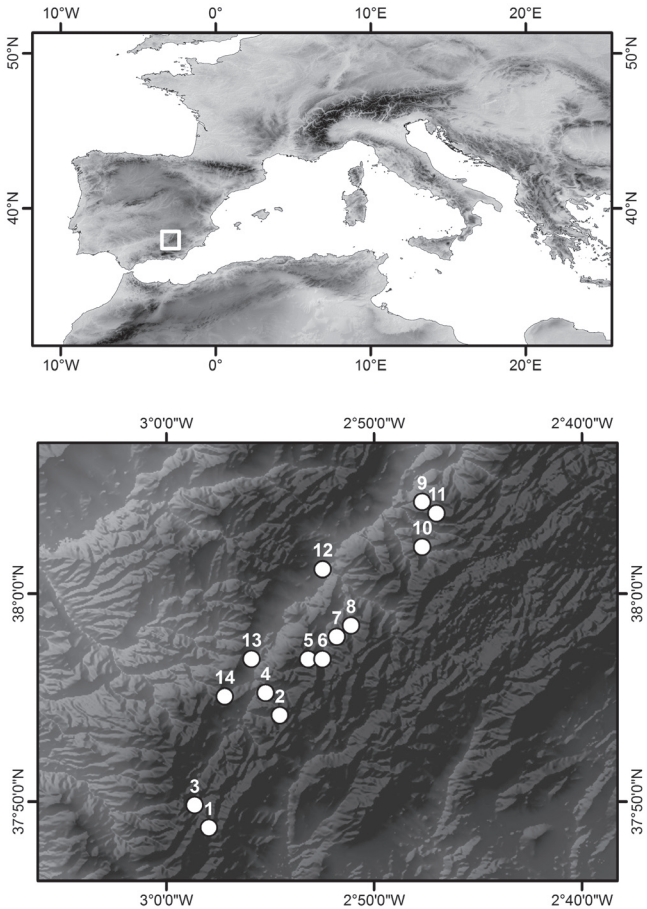

Fig. 1a. Geographical location of the "Cazorla, Segura & Las Villas" Natural Park.
b. Localities sampled.

Results

The catalogue of the aphyllophorales from the Natural Park of "Cazorla, Segura and Las Villas, Spain" includes 200 species, of which 97 are new for the Park (http://www.mycotaxon.com/resources/weblist.html). They represent 90 genera, the most significant of which are *Peniophora* (12 species), *Phanerochaete* (8 species), *Hyphoderma* (6 species), and *Hyphodontia* (6 species).

Seven species are new to the Spanish mycobiota: *Antrodia albidoides* A. David & Dequatre, with a Mediterranean distribution (Bernicchia 1990); *Fibricium subceraceum* (Hallenb.) Bernicchia, described from Iran (Hallenberg

1978) and later found in Italy and Argentina (Hjortstam & Ryvarden 1986); *Gloeodontia columbiensis* Burt ex Burds. & Lombard; *Hyphodermella densa* Melo & Hjortstam, until now restricted to Portugal (Melo & Hjortstam 2003); *Oliveonia pauxilla* (H.S. Jacks.)Donk, known from northern Europe, Canada, and Puerto Rico (Roberts 1999); *Postia undosa* (Peck) Jülich, widely distributed, but rare in the coniferous forests of the north temperate zone (Ryvarden & Gilbertson 1994), and *Skeletocutis albocremea* A. David.

One remarkable discovery in the park was the collection of *Campylomyces heimii* (Malençon) Nakasone, which Malençon (1939) originally described from Morocco on dry branches of *Quercus ilex* still attached to the tree. Telleria & Dueñas (1986) cited a second record from Cantabria (Spain), and our discovery of *C. heimii* on its typical substrate in Cazorla constitutes a third report.

Hyphoderma multicystidium var. *disporum* (M. Dueñas & Telleria) Hjortstam & Telleria, is reported for the third time. Dueñas & Telleria (1988) previously reported the species (as *Crustoderma sabinicum* var. *disporum* M. Dueñas & Telleria) from León and Guadalajara (Spain), fruiting on juniper wood.

Acknowledgements

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Literature cited

Bernicchia A. 1990. *Polyporaceae* s.l. in Italia. Instituto di Patologia Vegetale. Università degli Studi di Bologna

Cowling RM, Rundell PW, Lamont BB, Arroyo MK, Arianoutsou M. 1996. Plant diversity in Mediterranean-climate regions. Trends in Ecology and Evolution 11: 362-366.

Dueñas M, Telleria MT. 1988. Catálogo de los corticiáceos y poliporáceos, s.l. (*Aphyllophorales*, *Basidiomycotina*) de la micoflora cántabro-astur. Ruizia 5: 1-262

Hallenberg N. 1978. Wood fungi (*Corticiaceae*, *Coniophoraceae*, *Lachnocladiaceae*, *Thelephoraceae*) in N. Iran 1. Iran Journal Plant Pathology 14: 38-87.

Hjortstam K, Ryvarden L. 1986. Some new and noteworthy fungi (*Aphyllophorales, Basidiomycetes*) from Iguazu, Argentina. Mycotaxon 25: 539-567.

Malençon G 1939. Champignons rares ou nouveaux du Maroc français. Bulletin de la Société Mycologique de France 55: 34-60.

Melo I, Hjortstam K. 2003. A new species of *Hyphodermella* (*Basidiomycetes, Aphyllophorales*) from Portugal. Nova Hedwigia 77: 351-355.

Myers N, Mittermeier RA., Mittermeier CG, Fonseca GAB, Kent J. 2000. Biodiversity hotspots for conservation priorities. Nature 403: 853-858.

Roberts P. 1999. *Rhizoctonia*-forming fungi. A taxonomic guide. Royal Botanical Gardens, Kew.

Ryvarden L, Gilbertson RL. 1994. European polypores. Vols. 2. Fungiflora, Oslo.

Telleria MT, Dueñas M. 1986. De Aphyllophoralibus in Hispania provenientibus ordinati comentarii IV. Anales del Jardín Botánico de Madrid 43: 3-7.